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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,402	12/19/2001	Byong-Ho Park	S00-178/US	2083

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04/30/2003

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EXAMINER

VORTMAN, ANATOLY

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 04/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,402

Applicant(s)

PARK ET AL.

Examiner

Anatoly Vortman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 8-11, 27-30 and 39-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12-26 and 31-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the invention claimed in Group I, Specie I (claims 6, 7, 12, 25, 26, and 31) in Paper No. 9 is acknowledged. Claims 1-5, 13-24, and 32-38 have been found to be generic to all species. Thus, claims 1-7, 12-26, and 31-38 are pending in the instant application. Claims 8-11, 27-30, and 39-48 have been withdrawn from further consideration as drawn to a non-elected invention.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "activating means" recited in claims 13, 20, and 32 and "heating means" recited in claims 14 and 33 must be shown. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

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3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7, 12-26, and 31-38 are rejected under 35 U.S.C. 102(b) as being anticipated by US/4,411,711 to Albrecht et al., (Albrecht).

Regarding claims 1 and 2, Albrecht disclosed Fig. 1-4 a shape memory actuator element with a strain gradient variation between a first phase (state) (Fig. 4a) and a second phase (state) (Fig. 4c), (column 2, lines 32-46).

Regarding claim 3, Albrecht disclosed that said shape memory alloy comprises nitinol (column 4, line 3).

Regarding claims 4 and 5, Albrecht disclosed that the first state (3) is a Martensite (i.e. a low temperature) phase and the second state (5) is an Austenite (i.e. a high temperature) phase (column 2, lines 1-11 and 64+).

Regarding claims 6 and 7, Albrecht disclosed that said actuator element in said first phase (3) is positioned in a curved shape which is different from the curved shape of the second phase (5), wherein in said second phase (5) the strain gradient is lower than in the first phase (3) (since said second phase (5) has less curvature) (Fig. 1).

Regarding claim 12, Albrecht disclosed that said second phase (5) is substantially linear (Fig. 1).

Regarding claims 13 and 14, Albrecht disclosed that said actuator has (inherently) a heating actuating means (column 2, lines 10-11).

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Regarding claims 15-19, the claims consist of various functional recitations defining the ways the actuator moves while transitioning between phases (i.e. rotary, linear, contracting and expanding movements and combinations thereof).

The aforementioned functional recitations have not been given patentable weight because they are narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 USC § 112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279.

Regarding claims 20-26 and 31-38, the method steps recited in the claims are inherently necessitated by the device structure as recited by Albrecht.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

US/4411711, 4416706, 6005469, 5844464, 5061914, 4639060, 4554027, 4551975, 4484955, 3753792, 4019925, 4356478, and 5836066 disclosed various shape memory devices.

Please, note that US/5836066 (Fig. 13-15) also could have been used to reject under 35 USC 102 at least independent claims 1 and 20.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 703-308-7824.

The examiner can normally be reached on 9:30-6:00, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg can be reached on 703-308-4815. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Anatoly Vortman
Primary Examiner
Art Unit 2835

A.V.
April 29, 2003

